



June/July 2014

# Xplor

adventures in nature



**BUGS**  
**BEWARE**  
HERE THERE BE DRAGONS



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Dragonfly

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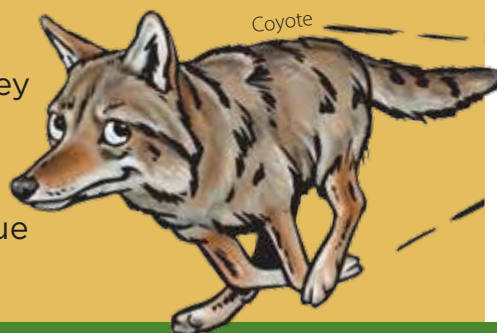


Female Eastern Pondhawk  
by Noppadol Paothong

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Coyote

# Xplor

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## ON THE WEB

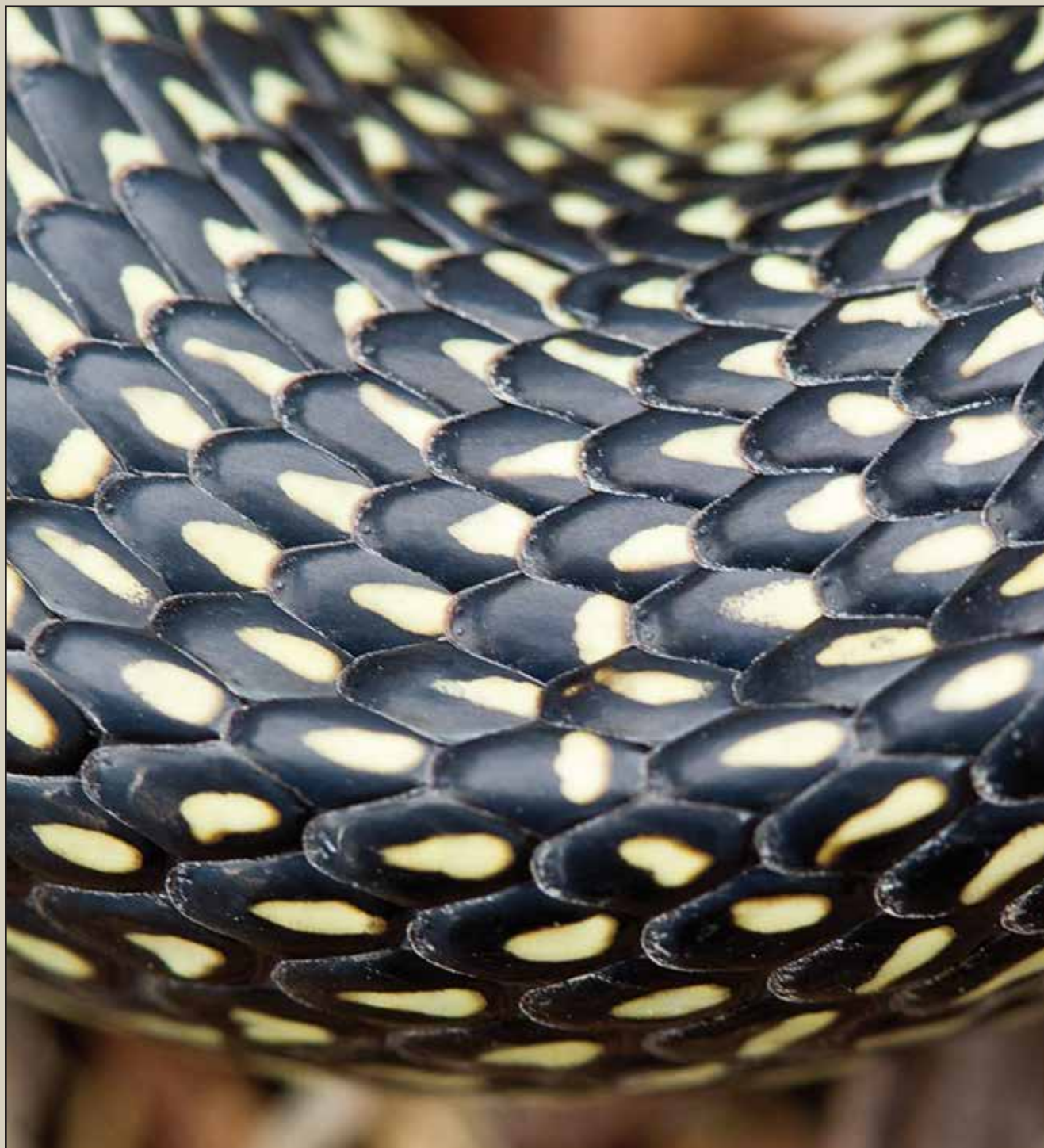
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# WHAT IS IT?

DON'T KNOW?

Jump to Page 16 to find out.



- ❶ Mice are my main squeeze.
- ❷ Sometimes I snack on snakes.

- ❸ I bring salt and pepper wherever I go.
- ❹ Most people call me king.



# Yummy discover

Smallmouth bass:  
Joseph Tomelleri



## Fish for SMALLMOUTHS

One of the best ways to beat summer's heat is to wade a cool Ozark stream and fish for smallmouth bass. Move slowly so you don't spook wary fish. Cast a crayfish lure, plastic worm, or tube jig into the deep, flowing water around boulders or under a snag. Let the lure sink and then twitch your rod as you reel in the lure. With any luck, you'll soon feel the explosive tug of a hungry smallmouth on the end of your line.

## Move Your BEDROOM Outside

Are you up for a challenge? Then see how many nights you can spend sleeping outside. It isn't as hard as it sounds. Just pitch a tent in your backyard and pretend it's your bedroom for the summer. There's no need to rough it. Going inside to eat, relax, and use the bathroom isn't against the rules. You can even keep a radio or fan in your tent.



School's out, and the best way to beat summer boredom is to head outdoors. With creeks to seek, baby animals to watch, and fireflies to catch, there's plenty to do in June and July. Here are a few more things to discover.



## Make a BERRY Yummy Treat

What's the best way to cool off after a steamy afternoon picking blackberries? With a bowl of blackberry ice cream, of course. In a food processor, blend 2 cups of blackberries, 1 cup of sugar, and  $\frac{1}{2}$  cup of water. Pour the mixture through a strainer into a glass bowl. Mix in  $\frac{1}{2}$  cup of heavy cream. Chill the mixture in your refrigerator for an hour, pour it into an ice cream maker, and soon you'll have a berry yummy treat.

## Don't miss the chance to Discover Nature at

Re-discover Missouri's grassy past at **DISCOVER NATURE—PRAIRIES.** Anita B. Gorman Conservation Discovery Center, Kansas City  
June 21, 10 a.m.–2:30 p.m.  
For info, call 816-759-7300.

Learn to shoot bows and arrows at **BEGINNING ARCHERY.** Jay Henges Shooting Range, High Ridge; 4th grade and older; July 8, 6–7:30 p.m.; Register at 636-938-9548, ext. 0.

Pick up pointers and practice paddling at **DISCOVER NATURE—CANOEING.** Cape Girardeau Conservation Nature Center  
June 10, 4–7 p.m.  
For info, call 573-290-5218.





Leafcutter bee: Johnny N. Dell, Bugwood.org

## BRING BACK THE BUZZ



Mason and leafcutter bees are perfect pollinators that hardly ever sting. Unfortunately, these colorful bees have disappeared from many yards. Bring back the buzz by building a house where bees can raise their babies. Find a block of untreated lumber that's at least 4 inches thick on all sides. Have an adult drill holes *almost* all the way through the block using a  $\frac{3}{8}$ -inch drill bit. Nail the block to a board, and then nail the board to a fence post or tree where it will get sun in the morning but stay shady for most of the day.

## Make a Swamp SCOOP

All kinds of interesting critters live in the muddy muck at the edges of ponds, streams, and wetlands. It's easy to get a close-up look at these creepy-crawlies. Just wash and rinse an empty bleach bottle. Ask an adult to help you cut off the end of the bottle and poke **holes** in the top as shown in the photo. Take your swamp scoop to the nearest muddy bank and use it to shovel up some soupy mud. Water will drain out the holes in the scoop, leaving behind all sorts of squiggly creatures.



these fun events.

### Create a hiking stick with your dad at **NATURE CONSTRUCTION: HIKING STICKS.**

Burr Oak Woods  
Conservation Nature Center,  
Blue Springs; June 21, 1–2 p.m.  
Register at 816-228-3766.

### Catch some croakers at **KID'S FROG GIGGING.**

Twin Pines Conservation  
Education Center, Winona  
Kids younger than 12 must  
have a parent present.  
July 12, 8–10 p.m.  
Register at 573-325-1381.

## BATHE A BIRD



American robin

The best way to get robins bobbin' in your bird bath is with shower power. Wash and rinse a plastic milk jug. Using a small nail, poke a hole in the bottom and top of the jug. Fill the jug with water and screw on the cap. If the holes are the right size, water should drip gradually, which birds find irresistible. Hang the jug above your bird bath, and in no time, beaked bathers will flock to your yard for a shower.



Looking for more ways to have fun outside? Find out about Discover Nature programs in your area at [xplormo.org/node/2616](http://xplormo.org/node/2616).



# PREDATOR VS. PREY

The struggle to survive isn't always a fair fight. Here's what separates nature's winners from its losers.

Illustration by David Besenger

## Fishing for Food

The six-spotted fishing spider is common along ponds and streams, but there's nothing ordinary about it. Measuring 2.5 inches long, this big spider can hunt on land, water, and deep below.

## Water Walker

The fishing spider can walk on water. It can also row, sail, and dive. By trapping air bubbles on its legs, it can breathe underwater for half an hour.

## Eight Eyes on Alert

With eight eyes, nothing slips past the fishing spider. Slight changes on the water's surface alert it when a meal is within striking distance.

Six-spotted fishing spider

## Lying Low

Like many amphibians, tadpoles stay hidden during the day and don't become active until night, when they are harder for predators to spot.

## Turbo Tadpole

The gray treefrog tadpole is a tempting meal, but the tadpole's strong tail and newly developing legs let it quickly dart out of harm's way.

Gray treefrog tadpole

**AND THE WINNER IS...**

Even if the six-spotted fishing spider lets this slippery tadpole slip by, chances are high it will get the next one that swims by.



Trail mix is the perfect snack to fuel your outdoor adventures. It's easy-to-make, easy-to-take, and — best of all — yummy. It's a snap to concoct your own awesome mix. Just pick a few ingredients from the first column, a few from the second, and shake them together in a zip-top bag.

## INGREDIENTS

### Salty and Crunchy

Nuts such as peanuts, almonds, cashews, pistachios, or pecans

Seeds such as pumpkin or sunflower seeds

Banana chips

Mini pretzels, sesame sticks, or cheese-flavored crackers

Granola or oat, rice, or wheat cereal

Mini graham crackers

### Sweet and Chewy

Dried berries such as cranberries, cherries, or blueberries

Dried fruit such as raisins, apples, pineapples, papaya, or mangoes

Candy-coated milk chocolates or peanut butter candy

Butterscotch or chocolate chips (white, dark, or milk chocolate)

Mini marshmallows

Yogurt-covered raisins or peanuts

# How To

## Make Yummy Trail Mix

Try out these fun recipes for your next adventure.



### Ozark Mountain Munch

- Dried blueberries
- Dried tart cherries
- Smoked almonds
- Candy-covered milk chocolates



### Xplorer Chow

- Dried cranberries
- Pecan halves
- Chocolate chips

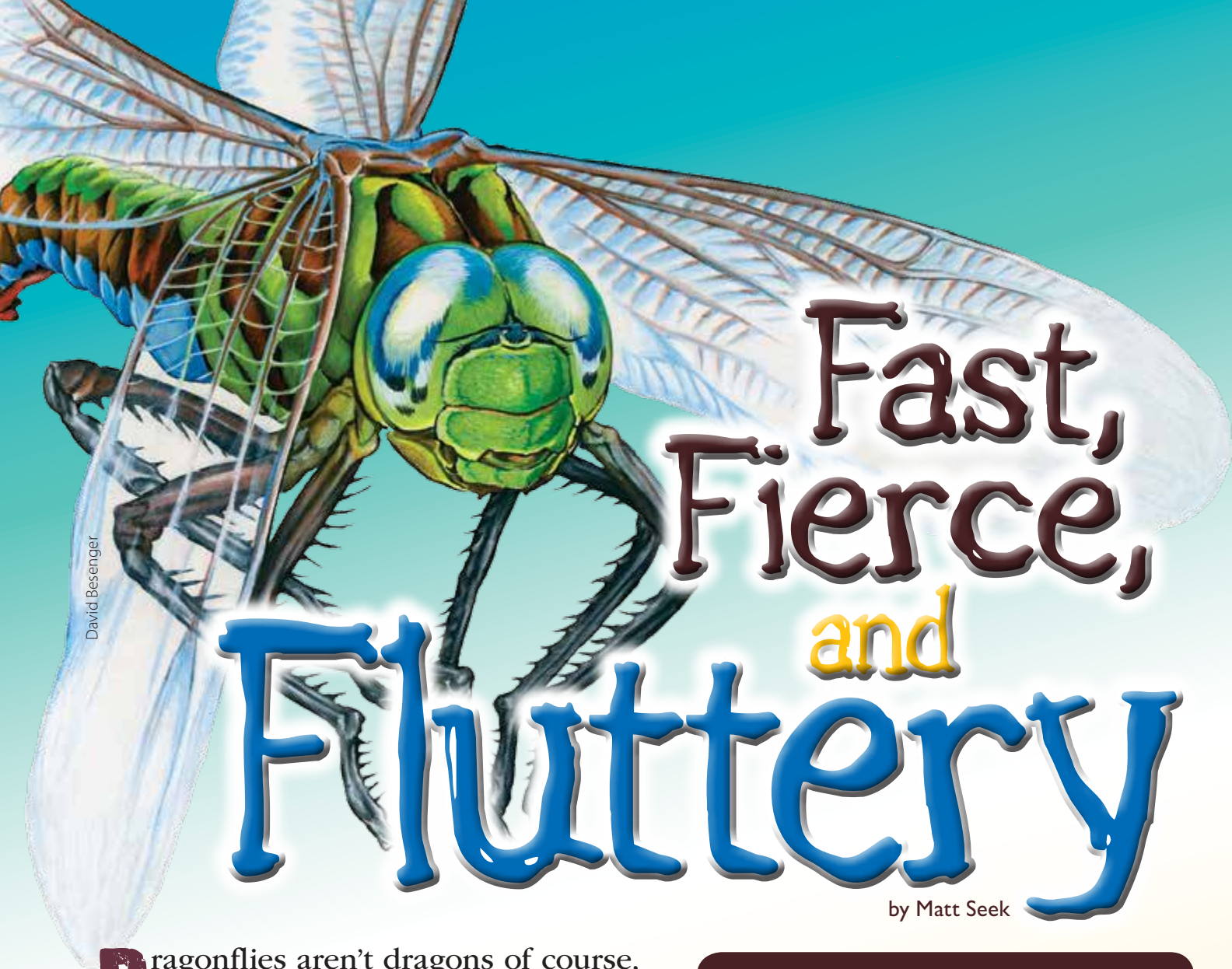


### Gimme S'more Trail Mix

- Mini graham crackers
- Mini marshmallows
- Chocolate chips

Or, come up with your own mix! It's fun and easy.





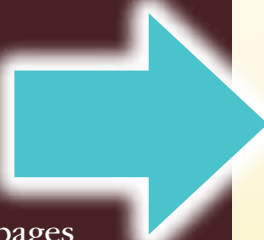
David Besenger

# Fast, Fierce, and Fluttery

by Matt Seek

**D**ragonflies aren't dragons of course, but they're just as awesome. They fly so perfectly that NASA and the U.S. military have studied them in hopes of making aircraft more nimble. Dragonflies see better than possibly any other creature on Earth. And, dragonflies are one of the deadliest hunters alive, catching more of the prey they go after than lions, crocodiles, and great white sharks. Best of all, unlike the fire-breathing variety of dragons, these dragons are real. You can find them patrolling nearly any pond, stream, or marsh in Missouri. So what are you waiting for? Get outside and find some fast, fierce, and fluttery dragonflies!

## But First, Make This Field Guide



- 1 Cut out the next two pages along the dotted lines.
- 2 Fold each cut-out down the middle.
- 3 Stack the cut-outs so the pages are in numerical order.
- 4 Staple the cut-outs together along the middle between pages 8 and 9.
- 5 Take your mini field guide to the nearest pond, stream, or marsh.





mdc.mo.gov

# You Discover DRAGONFLIES



Female Eastern Pondhawk

## A Mini Field Guide to the Fast, Fierce, and Fluttery

## Twelve-Spotted Skimmer



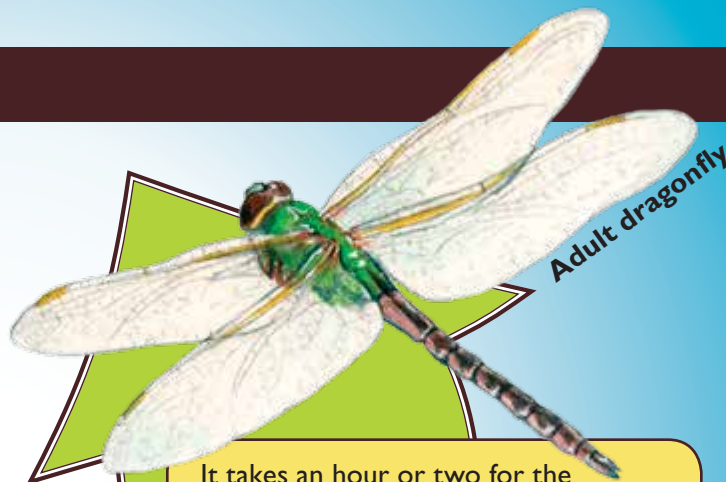
Male

**Flight Season:** May to September  
**Habitat:** Lakes and ponds with cattails and reeds

### Actual size

On cool, fall mornings, twelve-spotted skimmers sunbathe to warm up their flight muscles so they can fly.

This dragonfly is named for the three black spots on each of its four wings. But some people call them "ten-spots" because males have three white spots on each back wing and two white spots on each front wing. Confused yet?



Adult dragonfly

It takes an hour or two for the dragonfly's new body to harden. Once it's able to fly, the **adult dragonfly** sneaks off to a grassy meadow or shady forest. After a few weeks, it returns to a pond, stream, or marsh to mate.

When the nymph is ready to change into an adult, it crawls out of the water and sinks its claws into a cattail or reed. The nymph's skin splits open, and an **adult dragonfly** wiggles out.



# How Dragonflies Grow Up

Eggs

A dragonfly begins life as a tiny **egg** about the size of the period at the end of this sentence.

In a few days or a few months — it varies by the kind of dragonfly — a tiny **nymph** hatches out. While it's a nymph, the dragonfly lives underwater. The nymph sheds its hard, outer shell several times. With each molt, the nymph gets a little bigger.

Nymph

Emerging adult

2

# Anatomy of an Assassin

Dragonflies might be the deadliest hunters in the animal kingdom. Studies have shown they catch nearly 95 percent of the prey they chase. Here's what makes them such perfect insect-killing machines.

About half of a dragonfly's weight is made up of strong muscles that power its wings. Dragonflies can carry twice their body weight while flying.

Each of a dragonfly's wings can move separately from the others. This allows a dragonfly to rocket straight up, hover like a helicopter, make hairpin turns, zip backwards, dart forwards, stop on a dime, and fly upside-down.

Spiny legs snag prey that a dragonfly can't catch with its mouth.

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# Black Saddlebag Skimmer



Male

**Flight Season:** May to October

**Habitat:** Shallow lakes and ponds that lack fish; often wanders far from water

Actual size

On hot, sunny days, saddlebags will let their abdomens droop into the shade created by the spots on their wings.

Some black saddlebags migrate. They've been seen flying south with swarms of green darners and other migratory dragonflies.

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# Halloween Pennant



Male

**Flight Season:** June to September

**Habitat:** Open lakes and marshes

Actual size

Because of their orange color and fluttery flight, some biologists wonder if Halloween pennants look enough like poisonous monarch butterflies to avoid being eaten by birds.

When perched, Halloween pennants hold their back wings flat but tilt their front wings up. The dark spots on the wings provide shade for the dragonfly's body.

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# Common Whitetail



Male

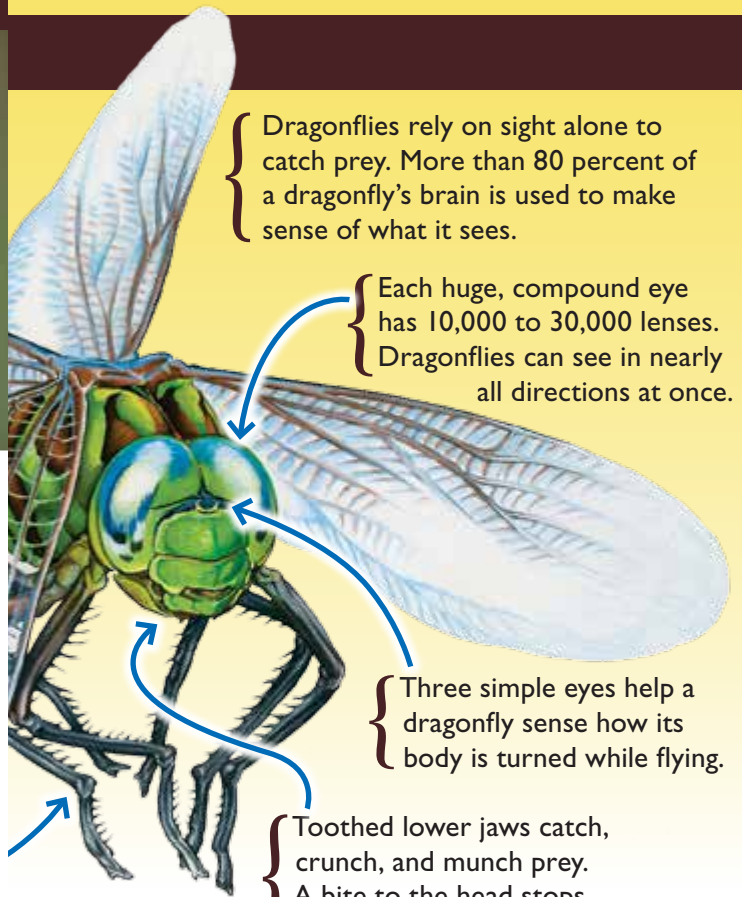
**Flight Season:** May to October  
**Habitat:** Ponds, marshes, and slow streams; tolerates yucky, muddy water

Actual size

Male whitetails follow a pecking order. Top males raise their white abdomens like flags. Other males lower their abdomens to signal they don't want to fight.

Female whitetails have fat abdomens that hold more than 1,000 eggs. They lay eggs quickly, releasing 25 per second into the water.

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Dragonflies rely on sight alone to catch prey. More than 80 percent of a dragonfly's brain is used to make sense of what it sees.

Each huge, compound eye has 10,000 to 30,000 lenses. Dragonflies can see in nearly all directions at once.

Three simple eyes help a dragonfly sense how its body is turned while flying.

Toothed lower jaws catch, crunch, and munch prey. A bite to the head stops large prey from struggling.

5

# Eastern Amberwing



Male

**Flight Season:** May to September  
**Habitat:** Muddy ponds, lake shores, and slow streams; often hunts in weedy fields and open woodlands

Actual size

With a body less than an inch long, the eastern amberwing is Missouri's smallest dragonfly.

When perched, eastern amberwings wiggle their striped abdomens to mimic a wasp. This makes predators think twice about snapping them up.

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- Thick, stocky body
- Eyes nearly touch in the center of its head
- When perched, holds its wings flat like a moth
- Zips and darts when it flies

- Slender, dainty body
- Eyes on the side of its head with space in between
- When perched, folds its wings together like a butterfly
- Flits and flutters when it flies

**Egg Laying** — If you see a dragonfly tapping its tummy into the water as it flies, it's likely a female laying eggs. Some females have a bladelike organ on their abdomens that they use to slice open plant stems so they can stuff eggs inside.

**Flying Together** — If you see a dragonfly towing another around, the one in front is a male, and the one behind is a female. Dragonflies flying together are getting ready to mate or lay eggs.

**Basking** — Dragonflies are cold-blooded and must warm up their flight muscles before they can fly. On cool mornings, dragonflies lie on rocks and other flat surfaces to soak up sunshine.

**Roosting** — Dragonflies aren't night owls. They go down when the sun goes down and find a dense shrub or tree in which to spend the night.

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# Dragonfly vs. Damselfly

Dragonflies and damselflies are closely related and look a lot alike. Here's how to tell them apart.



## What's That Dragonfly Doing?

**D**ragonflies do all sorts of interesting things. Try to spot these behaviors when you're out dragonfly watching.

**Hunting** — Some dragonflies hunt from a tall perch that offers a good view. They lift off every so often to pluck unlucky insects from the air. Other dragonflies patrol prey-rich areas, flying back and forth for hours to ambush unwary insects.

**Grooming** — Dragonflies clean themselves like fussy cats, using spines on their legs to comb debris from their bodies.

**Defending Territories** — Male dragonflies lay claim to locations that have lots of food, many mates, and good places to lay eggs. You often see males chasing other males out of these territories.

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## Blue Dasher



**Flight Season:** May to September

**Habitat:** Calm, still water such as marshes, swamps, and the backwaters of rivers

Actual size

Blue dashers hunt from a perch, zooming off every so often to snag unlucky flies and mosquitoes. They fiercely defend their favorite perches, chasing other dragonflies away.

On hot, sunny days, blue dashers do a handstand. They perch with their heads down and their abdomens straight up to reduce the amount of sunlight falling on their bodies.

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## Common Green Darner



**Flight Season:** April to October

**Habitat:** Lakes, ponds, marshes, and slow streams

Actual size

The green darner is one of the world's fastest insects, reaching speeds of 35 miles per hour while flying.

Some green darners migrate south in the fall. Offspring of these dragonflies migrate north the following spring.

Sometimes green darners group together to hunt in swarms. This is probably a mosquito's worst nightmare.

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## Eastern Pondhawk



**Flight Season:** May to October

**Habitat:** Nearly any body of water with floating plants

Actual size

Pondhawks might be Missouri's fiercest dragonflies. They often attack prey that's as big as or bigger than they are, including other dragonflies.

Pondhawks are known to follow cattle and horses to feast on insects stirred up by the large mammals.

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STEP RIGHT UP! SEE THE AMAZING...

# FREAKS of NATURE

by Matt Seek • artwork by David Besenger

Some of  
nature's creatures  
are just plain ... *freaky*.  
But, the features we  
think look weird are  
often what help  
animals survive.



TORTOISE-SHELLED RABBIT



MOLE CRICKET MONSTER



LIZARD THAT SLITHERS



DOG-FACED FISH

FLIP THE PAGE TO LEARN WHY THESE CRAZY  
CREATURES LET THEIR FREAK FLAG FLY

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## PRAIRIE MOLE CRICKET



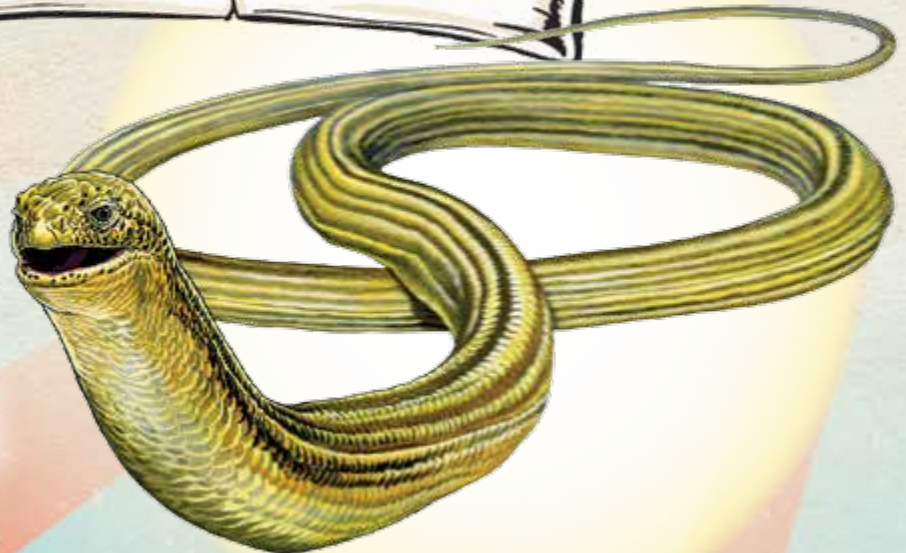
With their freakish feet, **prairie mole crickets** can't jump like their cricket cousins. But, boy can they dig. They spend most of their lives tunneling underground, except during mating season. That's when females fly around to mate and lay eggs. Males can't fly. Their wings are made to sing. By rubbing their wings together, males make chirping sounds that females find irresistible. Males also dig special, trumpet-shaped tunnels. The tunnels make their love chirps sound louder, which helps attract more females.

## SLENDER GLASS LIZARD

This lizard lacks legs. But make no mistake, it's not a snake. It can blink and wink, which snakes can't do — they don't have eyelids.

**Glass lizards** have ear holes.

Snakes don't. And, when attacked, glass lizards shed their long tails, a freaky feat no snake could do. The tail breaks into pieces — that's why they're called glass lizards — and squirms around. This distracts predators, giving the now-shorter lizard time to wiggle away.





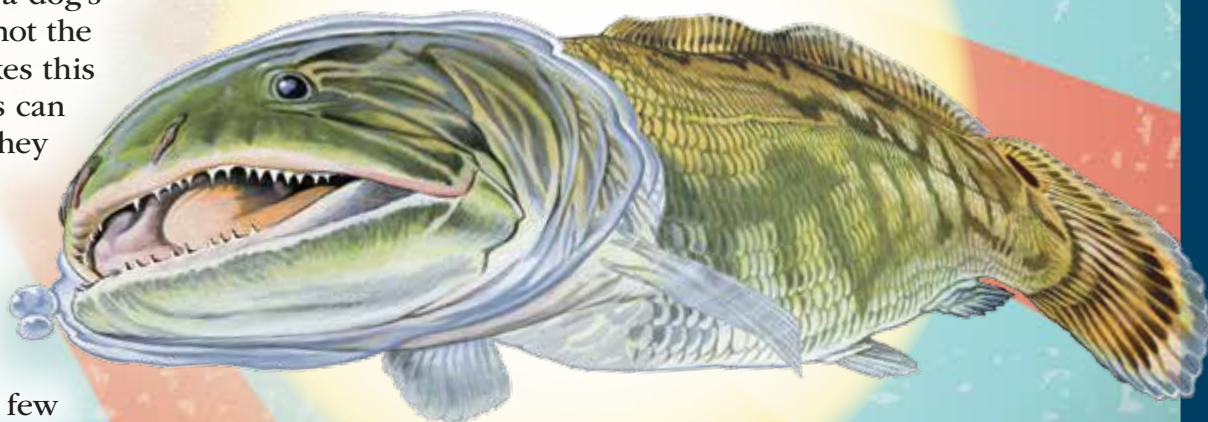


## NINE-BANDED ARMADILLO

What has ears like a rabbit, a shell like a turtle, and is about the size of a chubby house cat? It's the **nine-banded armadillo**, one of Missouri's freakiest mammals. An armadillo's back is covered with tough, leatherlike skin. This armor is perfect for predator protection, but it's heavy. To cross narrow streams, armadillos hold their breath and walk along the bottom. To cross wide rivers, an armadillo gulps air until its stomach blows up like a balloon. Then it floats across.

## BOWFIN

Some folks call **bowfins** "dogfish." That's because their mouths are packed to the gills with sharp teeth that look like a dog's canines. But that's not the only thing that makes this fish freaky. Bowfins can breathe air! In fact, they can survive out of the water for quite some time. Farmers have found live bowfins buried in plowed fields that had been flooded a few weeks earlier.





# WILD JOBS

WETLAND MANAGER **VIC BOGOSIAN** HAS TRAPPED MORE THAN 1,700 TURTLES AT EAGLE BLUFFS CONSERVATION AREA. AND, HE SAYS, THAT BARELY SCRATCHES THE SHELL.

**Q: WHY DO YOU TRAP TURTLES?**

**A:** Wetland managers think that if they provide habitat for ducks and geese, other wetland critters will be OK, too. Catching and counting turtles is one way to see if this is true.

**Q: HOW DO YOU CATCH TURTLES?**

**A:** I put dead fish at the end of long, tube-shaped nets. Turtles crawl in to eat the fish but can't figure out how to crawl out.

**Q: IS IT STINKY WORKING WITH DEAD FISH?**

**A:** You bet, but working with live fish can be stinkier. Once, a huge catfish got tangled in my net. I didn't want the fish to stab me with its spines, so I wrapped it in my shirt while I untangled it. After work, I had to take my wife to the grocery store. My shirt smelled so bad she made me walk behind her so people wouldn't know we were together.

**Q: WHAT DO YOU DO WITH THE TURTLES YOU CATCH?**

**A:** I measure them, mark them, and turn them loose. A few weeks ago, I re-caught a turtle I marked in 2011. It's cool to know he's been out on Eagle Bluffs, plodding along all this time.

**Q: WHAT'S THE BEST PART ABOUT TRAPPING TURTLES?**

**A:** Pulling up a net is like opening a Christmas present. You never know what you'll find inside.

Alligator snapping turtle

Turtles can bite. They also carry germs. Leave the turtle wrangling to experts like Vic.



# STRANGE but TRUE!

YOUR GUIDE TO ALL THE  
**UNUSUAL, UNIQUE,**  
AND **UNBELIEVABLE**  
STUFF THAT GOES ON IN NATURE

Jaw brawl:

When male **COLLARED LIZARDS** meet, they often open their mouths wide to show off their jaw muscles. Lizards with bigger muscles bite harder, so this gives each lizard a chance to size up the other and decide whether to fight or run away.

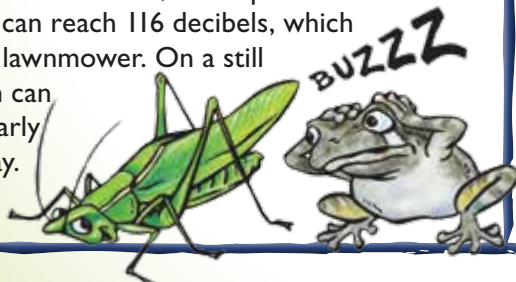


## COOPER'S HAWKS

dive bomb through forest openings to prey upon unsuspecting songbirds. But dodging tree branches at high speeds isn't easy. In a study of

more than 300 Cooper's hawk skeletons, nearly 25 percent showed evidence of broken bones.

The **ROBUST COMEHEAD KATYDID** is Missouri's loudest insect. To attract a mate, males produce an ear-splitting hum that can reach 116 decibels, which is louder than a lawnmower. On a still night, the hum can be heard nearly a mile away.



**COYOTES** are Missouri's fastest land animal. The cagey canines can zip across grasslands at a blistering 43 miles per hour. That's doggone fast! Compared to coyotes, humans are at the back of the pack, reaching speeds of only 27 miles per hour.



Holy inflight meal, Batman!

## LITTLE BROWN BATS

use their wings and tails like catcher's mitts to bag bugs while they fly. The bats transfer the morsels to their mouths in midair. Eating in flight allows a bat to top off its tummy in only an hour or two.



From late June through September,

## TARANTULAS

can be seen scurrying across roads in southern Missouri. The wandering spiders are usually lovestruck males searching for a girlfriend. Males may travel three-quarters of a mile for romance.



## CANADA GOOSE

does is pretty honking hard on its feathers. Geese molt, or shed, their worn-out and damaged flight feathers in late June. It takes about a month for new feathers to grow back, and during this time the geese can't fly.





# XPLOR MOR



## Flashy FACTS



Fireflies talk to each other with light. A male firefly's twinkling tush is like a neon sign.

"Here I am," it blinks. "Do you like me?"

Female fireflies hiding in the grass blink back when they spot a male they fancy.

More than 150 kinds of fireflies live in North America. Many species live in the same place, so males and females need a way to pick out their own kind in the dark. That's why each species has a unique blinking pattern. For example, male big dipper fireflies light up for

a solid half second while flying in a J-shaped pattern. Another common firefly blinks on and off every second like a strobe light.

Some female fireflies copy the flash pattern of other females. When a male arrives hoping for love, the female *liar-fly* grabs him and eats him for supper. Sometimes, love hurts.

### Firefly Fun 1 • 2 • 3 • flash

Lure a male big dipper firefly right to your fingertips by mimicking the female's flash. When you see a male finish his J-shaped flash,

immediately count, "one Mississippi, two Mississippi, three,"

then flash a small LED light for half a second.

Repeat until the male arrives.



## WHAT IS IT?

— FROM PAGE 1 —

other snakes. They're immune to pit viper venom, which comes in handy when tangling with rattlesnakes and copperheads. Kingsnakes kill prey by wrapping around an unlucky animal and squeezing until it can't breathe.

Speckled kingsnakes, which are also called salt-and-pepper snakes, are named for the yellow speckles on their black scales. Kingsnakes prey mostly on mice, but they also eat lizards and even





# E

# Crack the Code

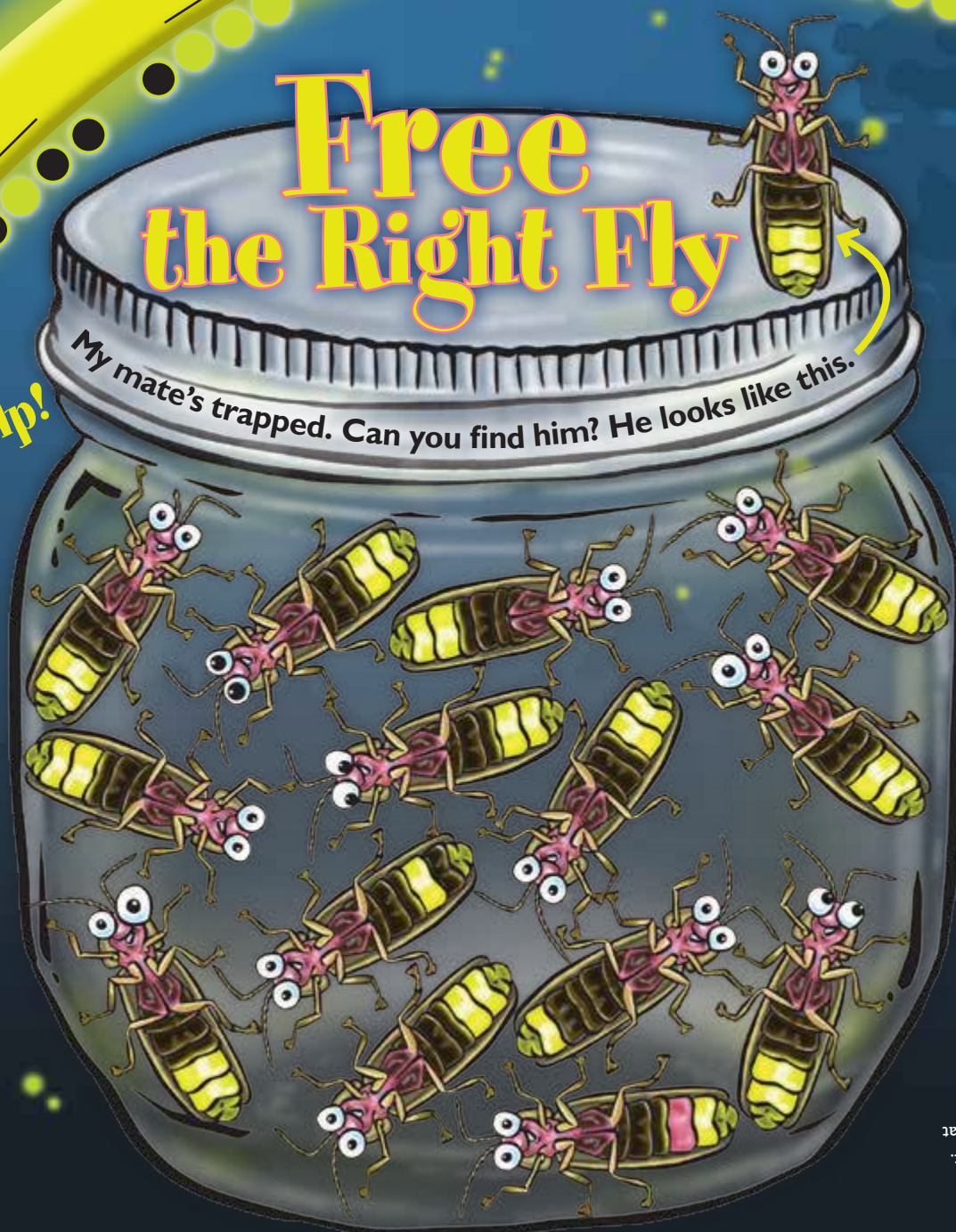
Why did the firefly dump her boyfriend? The answer is hidden in this series of blinks. Use the key to crack the code.



## Free the Right Fly

Help!

My mate's trapped. Can you find him? He looks like this.



### This key

is based on International Morse Code, which uses dots and dashes (short and long sounds or flashes of light) to communicate a message. Here, yellow circles represent dots and black circles represent dashes. Real fireflies don't use such a complex code.

A	●●	N	●●
B	●●●●	O	●●●●
C	●●●●	P	●●●●
D	●●●●	Q	●●●●
E	●	R	●●●
F	●●●●	S	●●●●
G	●●●●	T	●●●
H	●●●●	U	●●●●
I	●●	V	●●●●
J	●●●●	W	●●●●
K	●●●●	X	●●●●
L	●●●●	Y	●●●●
M	●●	Z	●●●●

Crack the Code: He was not very bright.  
Free the Right Fly: The upside-down fly at the very bottom of the jar.



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FREE TO MISSOURI HOUSEHOLDS

## CRITTER CORNER

### Painted Bunting



Don't let the flashy feathers fool ya. Painted buntings aren't afraid to fight. Males fiercely defend their territories, and bunting battles break out when one male invades another's space. The colorful songbirds fight dirty by pecking, clawing, and hitting each other with their wings. Fights can lead to lost feathers, gouged eyes, and even death.